

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements in or relating to Fastener Members

We, SELECTUS LIMITED, a British Company, of Biddulph, Stoke-on-Trent, Staffordshire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to a fastener member of the type having a surface with fastener elements shaped to releasably engage with elements on a surface of another fastener member.

The present invention has as its major object the provision of an improved method of making such fastener members and of an improved fastener member made by the method.

The invention accordingly provides a method of making a fastener member, the method having the steps of moulding in a mould an elongated base of plastics material having a plurality of fastener elements upstanding from a surface of the base, the elements having the form of hooks or loops, or a mixture thereof, or stems with spherical or otherwise enlarged heads. The invention also provides a fastener member having an elongated base of moulded plastics material and fastener elements having the form of hooks or loops, or a mixture thereof, or stems with spherical or otherwise enlarged heads upstanding from one surface of the base, the elements being intersected by the parting line of the parts of the mould in which the base is formed. No element will therefore have its surface formed by only a single part of the mould. The invention further provides a mould for producing the fastener member. The elements are arranged on the surface of the base in one or more planes corresponding to the division of the parts of the mould used for moulding the base, in accordance with requirements.

By way of example, embodiments of the invention are described below with reference to the accompanying drawing, in which:

Figures 1A and 1B are plan and side views

and Figure 1C is a sectional end view on line C—C of Figure 1A, of a short length of a first fastener strip embodying the invention, the strip having hook-shaped fastener elements;

Figures 2A and 2B are plan and side views of a second embodiment, having loop-shaped fastener elements;

Figure 3 is a plan view of a third embodiment;

Figure 4 is a plan view of a fourth embodiment; and

Figure 5 is a side view of a short length of a fastener strip having fastener elements in the form of headed stems.

The fastener member shown in Figures 1A, 1B and 1C comprises a strip 1 of moulded plastics material having a rectangular cross-section with a single row of fastener elements 3 upstanding from one of its major faces 2. Each element 3 has an upstanding stem bent over at its top to form a hook as can be seen from Figure 1B.

It will be noted that the row of elements 3 is arranged on the base strip 1 so that the median longitudinal plane 4 of the member, that is, a plane through the axis of the base 1 at right angles to the surface 2, extends through each element. The member can accordingly be moulded in a mould having two parts 5, 6 with a parting line or plane coincident with the plane 4. It will be appreciated that a fastening device comprising two fastener members as shown will not satisfactorily engage if the hook elements 3 extend in precisely parallel planes when the members are brought together. The elements are therefore arranged so as to have their median planes parallel and making a small angle with the median plane 4. The angle need be no larger than that shown in Figure 1A but a simple two part mould can still be used with an angle approaching 45°; a greater angle involves inconvenient moulding arrangements.

The embodiment of the invention illustrated

in Figures 2A and 2B is a fastener member resembling that of Figures 1A and 1B in having a strip-like base 11 with a row of upstanding elements 13 on one face 12. The elements 13 are however loop elements as will be clear from Figure 2B. The elements 13 are each arranged at an angle to the median longitudinal plane of the member but alternate elements are inclined to this plane in opposite directions. The member can be moulded in a two part mould divided not along a flat plane but on planes 14 following the directions of inclination of successive elements, with short intermediate portions parallel to the median plane as shown in Figure 2B. In the arrangement, the parting planes 14 of the mould coincide with the median plane of each element 13.

The fastener member shown in Figure 3 has a strip-like base 21 with fastener elements arranged in a zig-zag pattern on a surface 22. As shown in Figure 2A all the elements have their median planes in planes at right angles to the surface from which they project and inclined to the axis of the base 21; each inclined plane includes two elements. These planes correspond to the join 24 of the mould parts in which the base 21 is formed.

Figure 4 shows yet another arrangement of fastener elements 33 projecting from a surface 32 of a strip-like base 31. The fastener member is again formed in a two-part mould which divides along the line 34. It will be seen that some of the elements 33 extend longitudinally of the base 31 and some are inclined across the surface 32.

In both the embodiments of Figures 3 and 4, the fastener elements can be either hook-shaped or loop-shaped or a mixture of both; the fastener elements of Figures 1A and 2A can be selected likewise. Furthermore, as shown in Figure 5, the fastener elements can comprise stems 35 with enlarged heads 36 upstanding from a base 37, for interengagement with like elements as indicated in the figure. Where mixed elements are used on each of a pair of fastener members, each element is correctly positioned for engagement with a co-operating element of the other fastener members when the two members are brought together. The invention is not of course limited to any particular arrangement of the elements on the base; this can be selected to suit the intended use of the member having regard to convenience of moulding.

The fastener member of the invention can be moulded in any convenient technique in any suitable plastics material. Where the fastener has to be resistant to high temperatures, a thermo-setting material can be employed advantageously with spring metal fastener elements embedded in the base. The base of the member can include a reinforcing element if required.

The strip-like base of the fastener member of the invention can be of any suitable cross-

section, which will normally be uniform along the whole length of the member. The base can however be shaped to facilitate separation of desired lengths of fastener from the member as by spaced portions of lesser cross-section between the elements. As each member will normally have no more than three longitudinal rows of fastener elements, the width can be of the order of 1/16" or 1/8" of an inch. The base can have side walls shaped to interfit with a like member placed alongside. Conveniently, the base has a surface opposite that from which the elements project which is arranged to be readily connected with a plastics backing or by a suitably adhesive to a backing sheet on an article to be separably secured to another article.

It will be understood that a member according to the invention having hook-like elements will normally be engaged with a member having loops, the elements being sufficiently flexible to permit separation of the members when these are pulled apart. It is however possible to use one or more fastener members according to the invention with a differently constructed fastener member, for example, a fabric as claimed in Patent 721 338 or on uncut pile fabric treated by the machine claimed in Patent 935 228.

As will be appreciated, the invention can be embodied in a variety of ways, and the embodiments described can be variously modified, all within the scope of the invention as defined by the following claims.

WHAT WE CLAIM IS:—

1. A method of making a fastener member, the method having the steps of moulding in a mould an elongated base of plastics material having a plurality of fastener elements upstanding from a surface of the base, the elements having the form of hooks or loops, or a mixture thereof, or stems with spherical or otherwise enlarged heads.
2. A method as claimed in claim 1 having the step of moulding the elements integrally with the base.
3. A method as claimed in claim 1 having the step of embedding preformed fastener elements in the base during the moulding.
4. A method as claimed in claim 1 having the step of embedding preformed fastener elements of metallic wire in the base during the moulding.
5. A method of making a fastener member substantially as herein described with reference to the accompanying drawing.
6. A mould for performing the method claimed in any preceding claim, the mould having parts separable on a parting line intersecting the elements.
7. A mould as claimed in claim 6 in which the mould parting line corresponds to the median longitudinal plane (as herein defined) of the member.
8. A mould as claimed in claim 6 in which

the parting line has portions at right angles to the surface and inclined to the median longitudinal plane of the member.

- 5 9. A mould as claimed in claim 8 in which the parting line has additional portions at right angles to the surface and parallel to the median longitudinal plane of the member.

- 10 10. A mould substantially as herein described with reference to the accompanying drawing.

- 15 11. A fastener member having an elongated base of moulded plastics material and fastener elements having the form of hooks or loops, or a mixture thereof, or stems with spherical or otherwise enlarged heads upstanding from one surface of the base, the elements being intersected by the parting line of the parts

of the mould in which the base is formed.

12. A fastener member as claimed in claim 11 in which the elongated base includes reinforcement means. 20

13. A fastener member as claimed in claim 11 or 12 in which the base is of rectangular cross-section.

14. A fastener member made by the method 25 of any one of claims 1—5.

15. A fastener member substantially as herein described with reference to the accompanying drawing.

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